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27 February 2021

Director
Transport Assessments
Planning and Assessment
EIS digital submission via DPIE Website Service

Dear Sir/Madam,

RE: SSI-8862 TfNSW RMS Beaches Link EIS - Submission in Objection

I refer to the Department of Planning, Industry and Environment (the Department) public notification to the State Significant Infrastructure (SSI) and Environmental Impact Statement (EIS) for the Transport for NSW - Roads & Maritime Services (RMS, the proponent) – Beaches Link and Gore Hill Freeway Connection project (the Project, SSI-8862).

I lodge a submission in objection as the failure to include a business case and financial project justification within the EIS is of deep concern. The current proposal, in the event of favourable determination, will not succeed Infrastructure Australia's economic appraisal or business case assessment process (BCA), summarised below:

- *a robust BCA has been undertaken.*
- *best practice methods have been followed in the BCA, such as probabilistic risk-based cost estimates.*
- *the net benefits of the project outweigh the costs as measured in real present dollars.*
- *equity and distributional impacts of the project have been considered, with identified impacts properly accounted for on relevant social groups.*
- *the risk-based cost estimate, risk assessment, demand models and economic appraisal have been independently reviewed.*

In relation to BCA process, the business case has not been released for public consideration and applying Infrastructure Australia's calculated benefit compared to cost (BCR) is highly likely to conclude a score of 1.0 or less for the Beaches Link Tunnel as this project will not have any significant freight component compared to the Western Harbour Tunnel and is a road, in effect, to a peninsula servicing 300,000 people as opposed to being part of a wholistic and integrated network – population 5.2 million.

GIPA requests have materialised heavily redacted documents with meaningless information with regard to factual financial justification for this project.

Strong concern – recent track record of project blowouts are likely to occur as evident in recent TfNSW/RMS projects, therefore the mooted $14 Billion for the combined Western Harbour and Beaches Link Project is the starting point of further cost escalation. The lack of accountability and transparency with regard to the business case, avoiding public scrutiny reinforces the view that the natural environment has not been evenly economically weighted in responding to our City's needs versus Vested Interest wants – significant financial resources and technical effort have been spent by various government agencies to rehabilitate the harbour and protect sensitive marine habitats over the last 40 years.

Middle Harbour: Maritime Crossing

I object to the proposed maritime crossing if the works are carried out as currently planned within the EIS and summarised below:

- Potential land and seafloor toxins and contamination re-animation.
- Potential impacts to Aboriginal shelters/caves, artwork and artefact within the Clive Park Heritage Area.

The project cycle:

Pre-Construction
- Consultation
- Consent determination
- Further detail investigations
- Detailed design phase

Middle Harbour construction phase
- maritime waterway restrictions
- coffer dam piling
- construction vibration
- seafloor dredging
- immersion of the road tunnel tubes

The short and long term impacts of potentially disturbing toxins and heavy metal contaminated and re-suspended during the dredging works, especially with changes in tidal flows which will affect marine habitats and the public foreshores in the event of construction work failures.

My concern as a resident of Middle Harbour is the detrimental cumulative impacts occurring over 4 years upon Middle Harbour recreation areas used for boating, terrestrial and marine ecosystem education and water activities training. In effect potentially reducing access by 60% to 75%, depending on the user case activity affected by un-planned restrictions on normal waterway passaging and boating activities.

I am deeply concerned with the potential health effects that the dredging works will have on the well-being of recreational users, given the recent pandemic experiences and the EIS does not contain a health assessment for water access, swimming, or general water activities at Middle Harbour, Beauty Point beach, Clive Park beach, the local foreshore and adjacent rowing and sail training activity areas or impacts on Marina Businesses - Roseville, Castlecrag, Northbridge and The Spit.

The EIS does not include a plan for or offer alternatives or options to mitigate equitable access for recreational users, e.g. rowing, canoeing or sailing craft. The proposed extended construction program, potentially 4 years of construction activities and associated waterway restrictions, generates significant logistical and planning impacts to recreational users at Middle Harbour, compounded with the potential for re-suspension of toxins and heavy metals including tributyltin and lead (Pb) contamination2, with the potential unknown health impacts to the general public and aquatic life, and recent experience with Sydney Water sewage spills (2020- 2021). The compounded risks and hazards of concurrent major events generate unwarranted risks to the general public.

Clive Park - Northbridge

I am disappointed at the limited consideration for the protection and conservation of Clive Park's Aboriginal caves, shelters, artwork, which include whale and snake carvings and the risk of disturbing unknown artefacts within the Clive Park Heritage Area (CPHA) due to construction vibration and water draw down.

I strongly request in the event of project consent, that as part of the project's conditions of consent, a specific Maritime Construction and Environmental Management Plan (MCEMP) be developed and published on the project website for public information and relate to all pre-construction and construction phase works to address the location specific risks and hazards to the maritime waterway, Seaforth Bluff, Beauty Point and to Clive Park, which are generated by the project and from the generally un-substantiated work methods and work plans appended to the EIS.

I strongly request that as part of the Conditions of Consent that a Maritime Working Group be established with representation from affected local recreational groups, e.g. Sailing Clubs, Scouts and Marina Operators, Elected Representatives and Technical Staff from North Sydney Council, Northern Beaches Council, Mosman Council and Willoughby Council[1].

I draw attention to Clive Park's Heritage Area in Northbridge and the Proponent's proposed side access tunnel as illustrated in Figure 1 below.

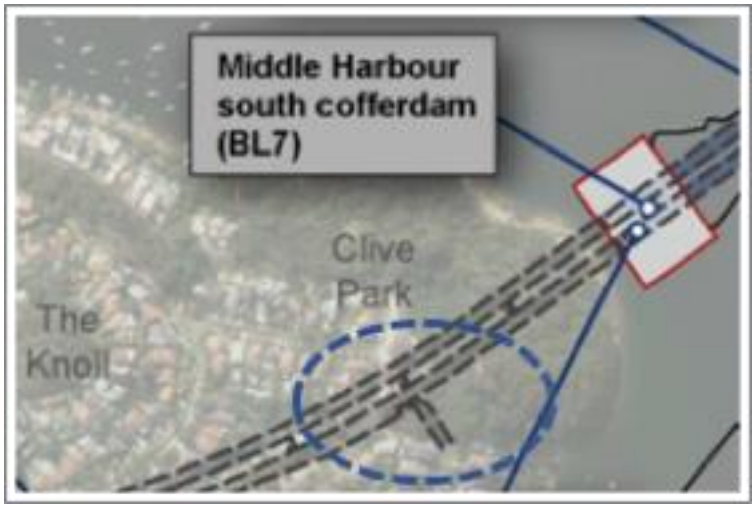

Figure 1 - Proponent diagram excerpt indicating a side access tunnel

The proposed works will potentially affect through above and below ground construction vibrations and ground water drawdowns the Clive Park Heritage Area (CPHA) and Aboriginal heritage elements and areas.

Clive Park is an important area for Aboriginal people as it contains twenty-six registered Aboriginal sites, including shelters, middens, burials, a fish trap, shelter art and engravings.

The Park provides important habitat for some remnant populations of small-range species, such as Brown Antechinus, skinks species as well as woodland birds. Its harbour foreshore also provides habitat for the threatened microbat species, the Southern Myotis, and is visited by Little Penguins and recent Seal sightings.

While there may be no formal "literature" or "formal record" of use, we dispute EIS (Chapter 15.3.7 Significance assessment) that the position that the 'Historical Significance' site is 'N/A'.

I strongly object to any construction phase and or permanent tunnel access being established within Clive Park at the corner of Coolawin Road and Sailors Bay Road (refer to Figure 1).

I strongly object to any planned truck movements along Sailors Bay Road to construct and or maintain the tunnel access location – cumulative impacts and traffic congestion across the district and regional road network needs to be further examined in an additional report to be submitted prior to the conclusion of the assessment of the this EIS and the Department condition additional site investigations, additional detailed analysis and additional vibration monitoring (pre-construction and during the primary works), and condition the Proponent to provide the Maritime Working Group with regular reporting (monthly) and event briefings (quarterly), to mitigate the Middle Harbour and Clive Park risks and hazards from the project.

Community, Business & Local Council Contributions – Deed of Agreements

The State Significant nature of this project and resultant disruptive impact to the community during the construction and commissioning phase warrants serious financial contribution to Community Organisations, Businesses and Local Councils to offset the disruption and loss of productivity due to the cumulative impacts noted in the EIS and ancillary impacts of the Western Harbour Tunnel (WHT) construction. I note that no condition was included in the recent approval of the WHT pertaining to Contributions – Deed of Agreements.

I strongly request that a condition of consent be included encompassing Contributions that instructs the Proponent and or pending Novated Project Private Sector Partners to enter into various Deed of Agreements to respond to my concerns. I strongly request that the following be included in the Contributions Register that the Proponent or pending Novated Project Private Sector Partner fund prior to project commencement:

Item and component	Contribution
1. Clive Park – Willoughby Council Park and Beach – reinstate pool seawall & park protection	$ 2,000,000.00
2. Northbridge Sailing Club Deck and Building – urgent repairs and refurbishment	$ 4,000,000.00
3. 1st Northbridge Sea Scouts Boat Shed– urgent repairs and refurbishment	$ 2,000,000.00
4. Northbridge Baths – Willoughby Council Programmed maintenance, repairs and refurbishment	$ 8,000,000.00
5. Flatrock Gully – Willoughby Council Reinstatement of Bushland and Ancillary Works	$30,000,000.00

In my view, the Department and the Proponent have an obligation to talk to other affected groups within North Sydney, Mosman and Northern Beaches LGAs to ascertain and finalise a complete Contributions Table.

I request that the Department requires the Proponent to proactively engage and consult with all directly affected community groups, with all affected maritime users and with affected adjacent landowners, and with conservation and Aboriginal groups especially where there are significant Commonwealth and State heritage listed elements and areas which are subject significant risk by the proposed works.

Previous Contamination Studies and Reports

Initial review of the technical studies available[2] and EIS reports and appendices by the Proponent for Middle Harbour area, indicate that the proposed Middle Harbour tunnel crossing and construction area, is potentially contaminated by past maritime activities (e.g. antifouling activities, Australian and US Navy World War 2 operations and by other commercial activities) which can contain numerous toxins, including 'Tributyltin' or TBT and heavy metals including lead (Pb).

These types of potential toxins and contamination are highlighted in the *'Sydney Harbour Background Report' (MEMA, c2014)*, as shown in Figure 2 below.

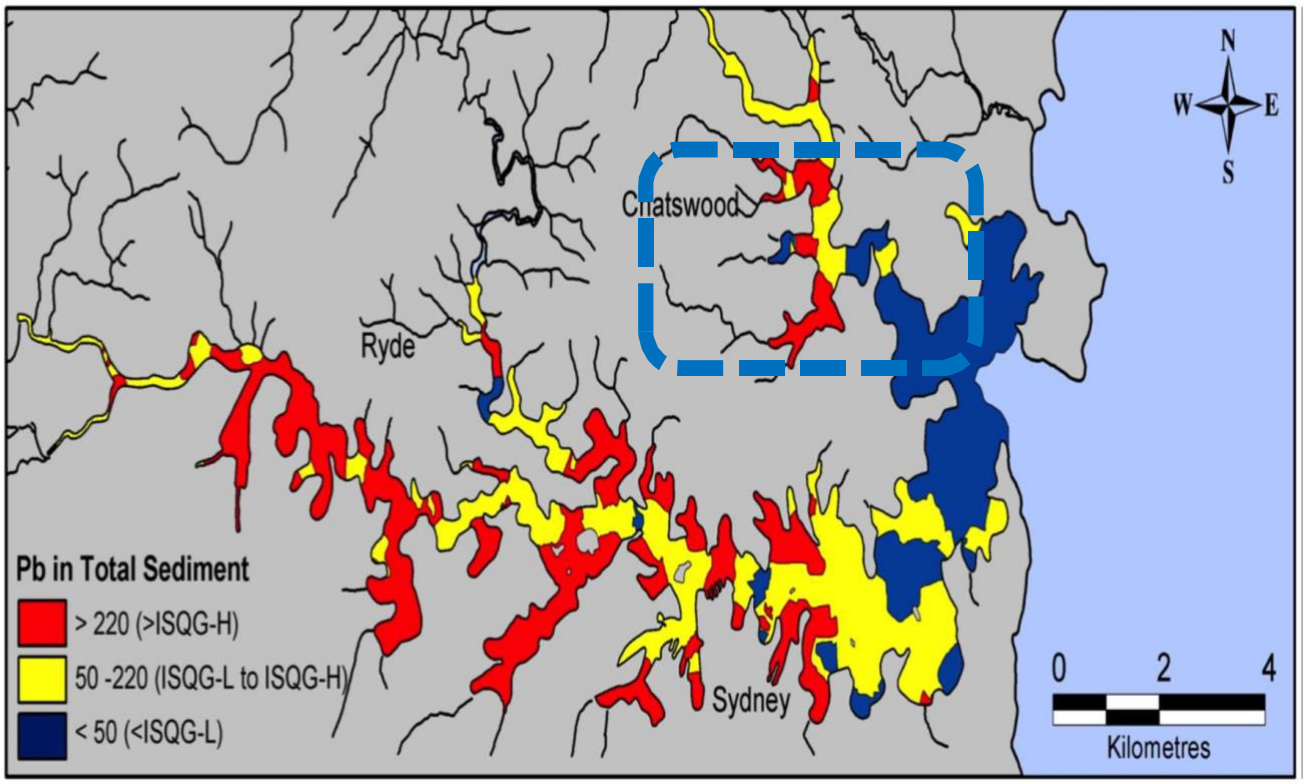

Figure 2 Distribution of Lead contamination (extract from 'Figure 13: Sediment in Sydney Harbour where lead concentrations are at a level to cause possible biological effects on fauna' Source: Gavin Birch, University of Sydney; Sydney Harbour Background Report, MEMA, c2014)

[1] Clive Park Willoughby City Council (nsw.gov.au)
[2] https://www.smh.com.au/national/nsw/harbour-sludge-to-be-dug-up-for-new-tunnel-contains-alarming-levels-of- toxins-20210212-p5721z.html

Runoff from inland developed areas, Greater Willoughby and Killara-Davidson catchment areas and from adjacent developed marina hard stand areas, local pontoons, finger jetty's along the northern edge of the Northbridge foreshore, commercial slipways and mooring areas within Sailors Bay estuary and upper Middle Harbour areas, has led to the potential risk of TPT and heavy metal contamination accumulating on the sea-floor.

Various heavy metal contamination studies into the Greater Sydney Harbour and inshore towards Middle Harbour waterway areas, have been carried out since early 2000. These studies indicate and conclude that land surface and the seafloor contain various heavy metal concentrations.

The proposed harbour crossing area is situated in a zone of 'Pb sediment fine fraction' varying between '200-400' up to greater that' >400' (refer to Figure 3) as shown below:

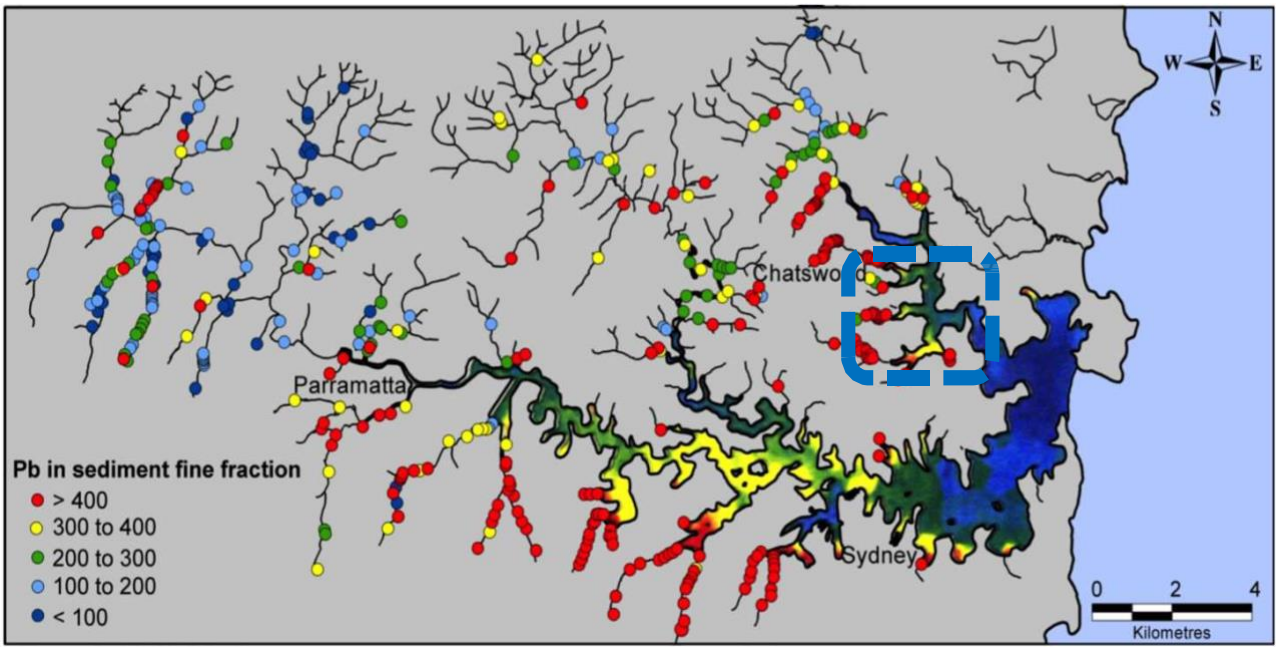

Figure 3 Distribution of Lead contamination (extract from 'Figure 12: Distribution of Lead contamination in the Sydney Estuary'. Source: Gavin Birch, University of Sydney; Sydney Harbour Background Report, MEMA, c2014)

Contamination affects – Plume Modelling

The following key graphics have been extracted from the EIS and EIS Appendices:

Initial EIS plume modelling showing potential contaminate spread over Clive Park beach, general foreshore and under the Northbridge Sailing Club land, with potential for spread towards Northbridge Scouts Boat Shed.

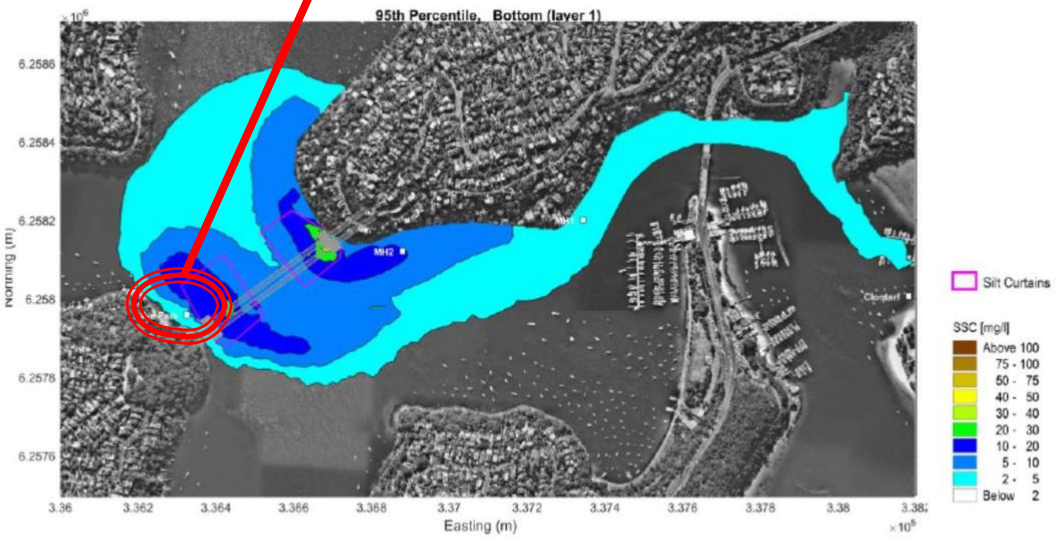

Figure 9-18: 95th percentile, for surface (top), mid-water column (middle) and near the seabed (bottom) for the BHD only dredging period (weeks 1 to 4)

Figure 4 EIS Chapter 17 and Appendix P - Hydrodynamic and dredge plume modelling.

I strongly request that the 98th percentile for surface (top), mid-water column (middle) and near the seabed (bottom) for the BHD only dredging period (weeks 1 to 4) be released to the Department by the Proponent. This will ensure in the Public's mind that fulsome and transparent assessment pertaining to other community and public assets are taken into consideration. I have deep concerns that Northbridge Baths and 1st Sailors Bay Boat Shed could be potentially affected, and the release of this additional dredge plume modelling would potentially allay concerns and permit public scrutiny.

Initial EIS plume modelling showing potential contaminate spread over Clive Park beach, general foreshore and under the Northbridge Sailing Club land and potential for spread under Northbridge Sea Scout Boat Shed.

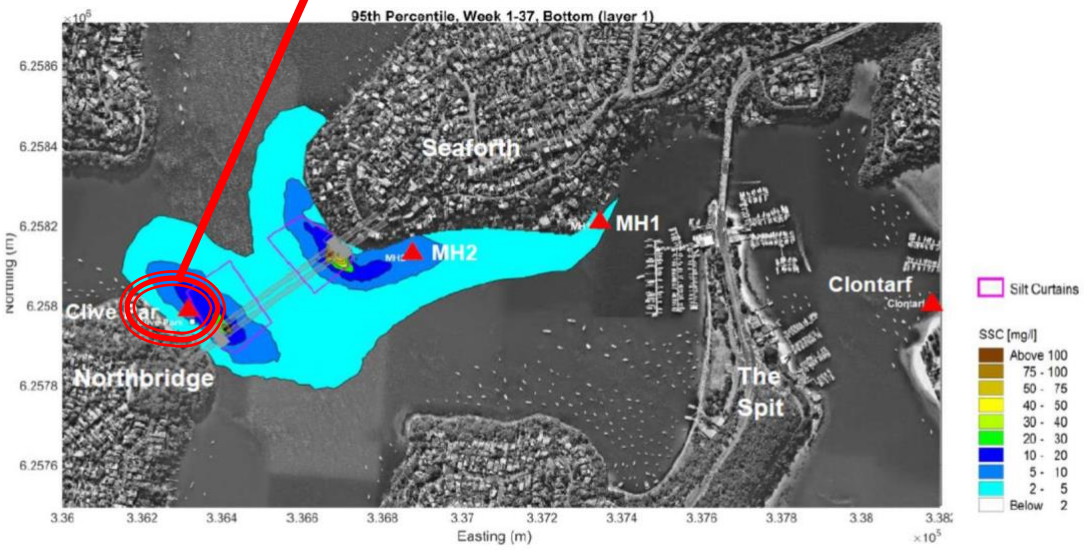

Figure 7-6: 95th percentile, for surface (top), mid-water column (middle) and near the bed of the harbour (bottom) for the entire dredging period (weeks 1 to 37)

Figure 5 EIS Chapter 17 and Appendix P - Hydrodynamic and dredge plume modelling

I strongly request that the 98th percentile for surface (top), mid-water column (middle) and near the seabed (bottom) for the entire dredging period (weeks 1 to 37) be released to the Department by the Proponent. This will ensure in the Public's mind that fulsome and transparent assessment pertaining to other community and public assets are taken into consideration. I have deep concerns that Northbridge Baths and 1st Sailors Bay Boat Shed could be potentially affected, and the release of this additional dredge plume modelling would potentially allay concerns and permit public scrutiny.

The 'State Environmental Planning Policy No. 55 – Site Remediation (SEPP 55)' prescribes a statutory process associated with the development of land (including in this case, we suggest that the land includes seafloor, Clive Park rock shelves, Clive Park beach areas and adjacent titles lands) that are potentially contaminated, and that require assessment and remediation. Clause 7 of SEPP 55 provides the following:

(1) A consent authority must not consent to the carrying out of any development on land unless:

(a) it has considered whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

Toxins, TBT materials and heavy metal contamination within the proposed work zones are a high risk. Release of toxins, TBT and heavy metals by the dredging and tunnelling activities, especially during and post changes in tidal movements, caused by sea channel/bed changes and siltation brought about by the tunnel bedding works, in our opinion pose a significant health risk to the public and marine habitat.

I strongly request that the initial EIS plume modelling and material deposition (95th percentile only) should be reviewed by an independent professional party at 98th percentile and with human health effects as a primary test, as the changes to local tidal flows *(EIS, Chapter 13, 17 and EIS Appendix P Hydrodynamic and dredge plume modelling)* and the potential unknown health impacts to the Public, have not been assessed as part of the EIS documentation development to date.

Noise and Vibration

The key noise and vibration events affecting residents near Clive Park and Community Organisations relate to the proposed tunnelling activities as shown in the table below and predominately associated piling works for the cofferdams.

Piling works upon commencement, must be continuous until they are complete, as such the most appropriate scheduling of these severely disruptive activities should be commenced in May and be completed before the end of August of each calendar year, when the Middle Harbour waterway use is generally at its lowest.

Table 5-104 – Middle Harbour crossing – construction hours

Stage	Representative activity	Reference	Activity description[1]	Work hours[2]			
				Day (Standard)	Day (OOHW)	Evening	Night
Installation of temporary cofferdam structure	1. Build Middle Harbour north cofferdam	MHC_01	Piling for cofferdams	♦			
	2. Build Middle Harbour south cofferdam	MHC_02	Piling for cofferdams	♦			
	3. Dewater cofferdams	MHC_03	Pump water out of cofferdams	♦	♦[4]	♦[4]	♦[4]
Excavation of sediment and rock within cofferdam	4. Excavate cofferdams	MHC_04	Remove sediment and rock from cofferdams	♦			
Pile temporary mooring facility east of Clive Park	5. Pile moorings	MHC_05	Pile moorings	♦			
Construction of interface structure	6. Cast interface structures	MHC_06	Cast concrete interface structures	♦			
Inundation and removal of cofferdam structure	7. Remove cofferdams	MHC_07	Inundate and remove cofferdams	♦	♦[4]	♦[4]	♦[4]
Dredging of a trench for the immersed tube tunnels	8. Prepare foundations	MHC_08	Dredge and place gravel foundations	♦[3]			
Construction of immersed tube tunnel piled supports	9. Pile foundations	MHC_09	Pile foundations for immersed tube tunnel	♦			
Installation of immersed tube tunnel units	10. Immerse tunnel units	MHC_10	Immerse and connect tube tunnel units	♦	♦	♦	♦

Notes:
1. Annexure E describes the modelled plant for each activity
2. Day Standard is 7.00am to 6.00pm Monday to Friday and 8.00am to 1.00pm Saturday
   Day Out-of-Hours Work is 1.00pm to 6.00pm Saturday and 8.00am to 6.00pm Sunday/Public holiday
   Evening is 6.00pm to 10.00pm Monday to Friday and 6.00pm to 10.00pm Saturday/Sunday/Public holiday
   Night is 10.00pm to 7.00am Monday to Friday and 10.00pm to 8.00am Saturday/ Sunday/Public holiday
3. Following the ceasing of dredging activities, the barge spoil transportation may extend beyond standard construction hours
4. Pumps are to remain operating, no other activities proposed.

Figure 6 EIS Appendix G – Noise and vibration (Part 1), Section 5.7.1.3

EIS Appendix G - Section 5.7.2.4 states:

‘During piling for moorings temporary mooring east of Clive Park (MHC_05), no receiver buildings are predicted to be highly noise affected (>75 dB(A)), as moorings would be screw piles bored into rock (quieter than impact piling). However, up to 124 receiver buildings are predicted to be noise affected (>NML) across Northbridge, Castlecrag and Seaforth in NCAs 39.1, 39.2, 40.1, 40.2 and 41.1.’

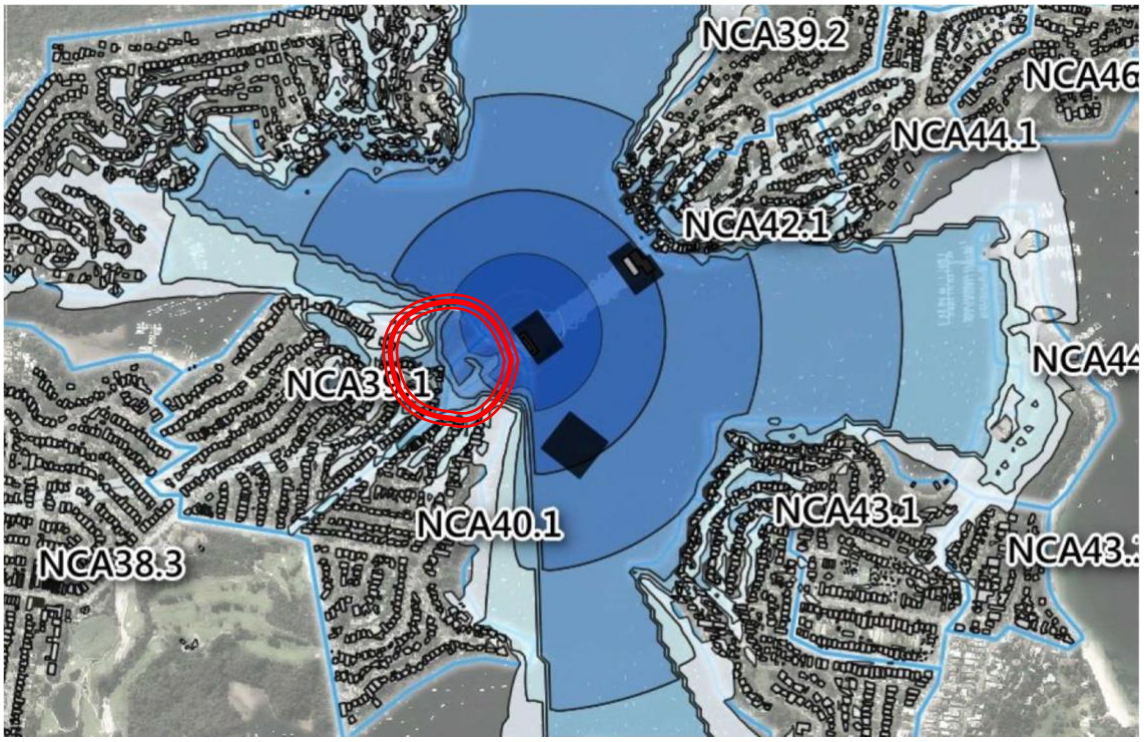

Figure 7 App G Noise and Vibration – BL7 (Standard Hours), LAeq (15min) at 70-75dB(A) at the Northbridge Sailing and Northbridge Scout Boat Shed (Red)

Numerous residents in Northbridge and Seaforth, the Northbridge Sailing Club and Northbridge Scouts Boat Shed areas will be subjected to prolonged periods of construction noise between 70-75dB(A) as shown in Figure 7.

This level of noise exposure is considered a ‘Highly Noisy’ environment (refer to Figure 8) and prolonged periods of exposure to this high level of noise can and will be damaging[3] to the local residents and to the public using Clive Park, recreational activities associated with the Northbridge Sailing Club and Northbridge Sea Scouts.

[3] https://www.epa.nsw.gov.au/your-environment/noise

Table 3 **Noise at residences using quantitative assessment – during the recommended standard hours: noise affected and highly noise affected management levels**

Time of day	Management level $L_{Aeq, 15min}$ [1, 2, 3, 4, 5]	How to apply
Recommended standard hours Monday to Friday 0700 to 1800 Saturday 0800 to 1300 No work on Sundays or public holidays	Noise affected RBL + 10dB	Where the predicted or measured $L_{Aeq, 15min}$ is greater than the noise affected management level, the proponent shall apply all feasible and reasonable work practices to meet this level. As a matter of good practice, noise should be reduced as far as reasonably practicable. The proponent should notify all potentially impacted residents.
	Highly noise affected 75dB(A)	Where noise is above the highly noise affected management level, all feasible and reasonable mitigation shall be applied as well as engagement with the consent authority or regulator to identify other measures to manage noise impacts. Where appropriate, engagement with the community is encouraged to determine the preferred mitigation approach, such as: • negotiated agreements and/or respite periods to restrict work activity • identification of times when the community is less sensitive to noise, including options for longer periods of construction in exchange for restrictions on construction times.

Figure 8 EPA Draft Construction Noise Guideline – Section 5.3 'Highly Noise Affected'.

I acknowledge that upon favourable determination that there will be long periods of disruptive activity with high noise thresholds, and will be seeking noise and vibration respite in accordance with the EPA Construction Noise Guidelines (refer to Figure 9) and as part of the development of the Maritime Construction and Environmental Management Plan (MCEMP) as strongly requested and stated earlier in this submission, and which will be activity managed and reviewed by the Maritime Working Group.

Consultation and evaluation of respite periods and alternative accommodation	The proponent must justify the selection of feasible and reasonable mitigation emphasising community views, particularly work scheduling and respite periods, as described in section 5.4. Alternative accommodation offers should be provided to give respite from potential sleep disturbance, if appropriate, and: any offers should be clearly communicated and negotiated with the affected individuals where alternative accommodation is not offered, the reasons must be fully justified to the relevant consent authority or regulator if required. Insufficient justification may result in specific mitigation measures being included within a licence or consent.	Where activities are likely to result in noise of around RBL + 20dB or more and/or where the highly noise affected management level of 65dB(A) or more is predicted, proponents are expected to: engage with, and seek feedback from, the affected community (and appropriate regulatory authority as appropriate) on preferred working hours, including respite periods evaluate whether the offer of alternative accommodation is feasible and reasonable. These steps should be documented, and the outcomes justified. Section 5.4 provides further advice.

Figure 9 EPA Draft Construction Noise Guideline – Section 5.3.1 'Noise Management' and 'Respite' over 65dB(A)

Construction Vibration (Tunnel and Coffer dam) and Aboriginal shelter/cave review at Clive Park - Northbridge

EIS Appendix L - Section 8.2.1.2 states:

"Tunnel excavation, combined with the subsequent impacts on groundwater levels, is expected to result in settlement at the ground surface. To assess the impact on Aboriginal sites (particularly rock shelters and engravings), it is important to estimate potential levels of settlement."

And

"However, calculated surface settlement at Aboriginal archaeological sites within the study area is predicted to range between 10 millimetres and 30 millimetres. A damage classification model (CIRIA 1996)"

And

"The results of Sefton's analysis showed that the determining probability of subsidence related impacts to a rock shelter was overhang size, with larger shelters (greater than 50 cubic metres) at greater risk
of impact".

The EIS infers that the Clive Park shelter/cave is less than 50m^3 and *'suggesting that harm from subsidence related impacts would be unlikely to these Aboriginal site types'*. It can be seen in the *NearMaps® (refer to Figure 10)* area calculations and using an averaged rock depth of approximately 3m (some areas of the shelter/cave sections are over 4m in rock depth) that the closest rock shelter/cave at Clive Park is greater than Sefton's 50m^3 threshold vs. the 167m^3 existing rock mass (i.e. 3x times increase in limit volume).

The proposed road header type tunnel construction method is located directly beneath the Commonwealth and State listed heritage shelter/cave and artwork sites.

Commonwealth and State approval to disturb and/or damage a listed heritage site has not been obtained due to an 'error' in the EIS documentation.

Figure 10 Rock shelter/cave approx. 55.7m2 (plan area) x average 3m (rock depth) = approx. 167m3 of rock mass

The north bound tunnel and associated rock bolting used with this type of construction, and based on the EIS tunnel and coffer dam sections/sketches (which are not detailed nor definitive), the rock bolts will probably be located within 10-15 metres and the tunnel crown at 15-20 metres to the bottom of the rock outcrop.

Photographs: The following three (3) images were taken from the water 27 February 2021 and illustrate the rock caves, shelters, overhangs (red circle) used by Aborigines at Clive Park – note the scale and landmark feature acting as a gateway marker to Sailors Bay.

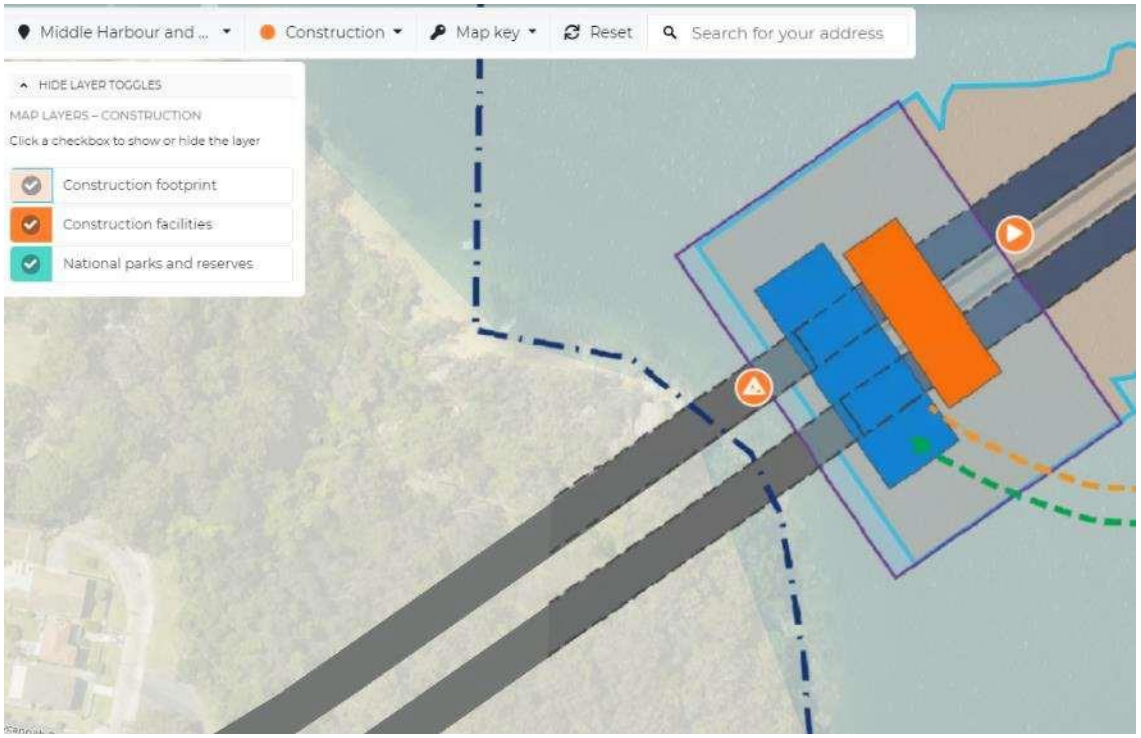

Figure 11 Beaches Link interactive portal overlaid with the Clive Park shelter/cave location (green)

Therefore, there is a high potential of Aboriginal shelter/cave subsidence, high potential for significant damage to irreplaceable Aboriginal artworks (which are immediately adjacent to the shelter/cave) or in the worst case full rock face collapse and the risk/hazard to the public who frequent this park area, due to the Proponents tunnelling and coffer dam works (refer to Figure 11 and Figure 12).

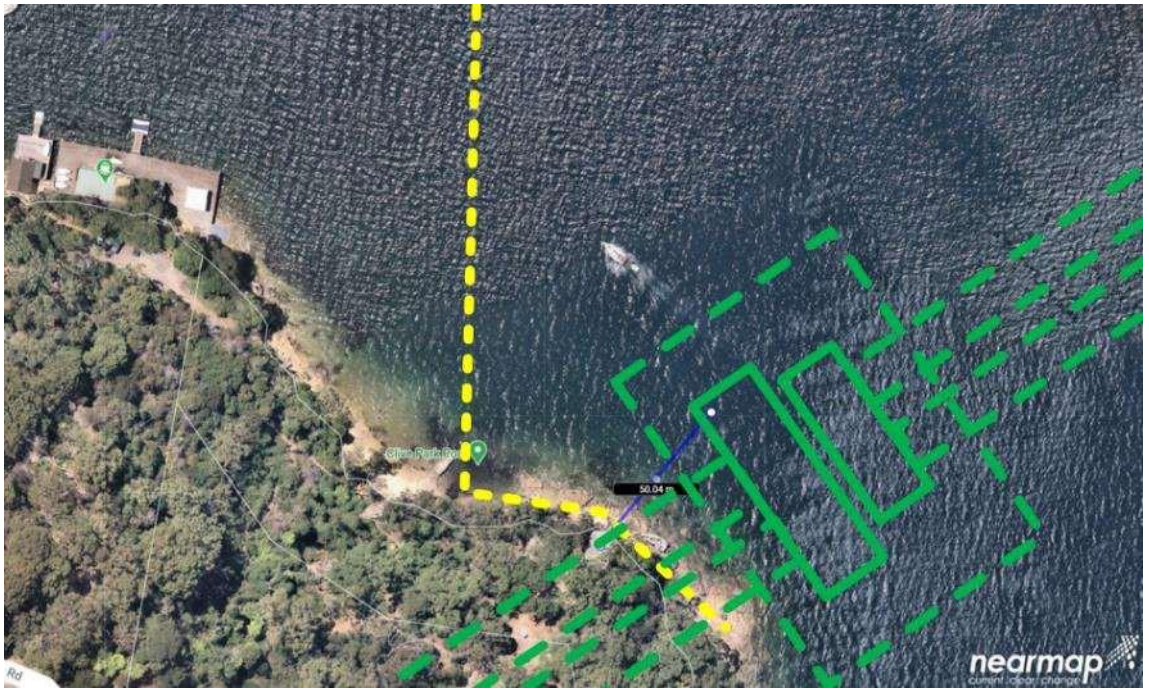

Figure 12 The proposed coffer dam works are located approx. 40-50m to Aboriginal shelter/cave

EIS Review Summary

In my view, the EIS findings are technically flawed and have focused on the impacts to future construction activities, i.e. to the Proponents works and future construction workers.

The currently submitted EIS and supporting technical documents provides little assurance to me, the residents, businesses and community organisations that the effects of the planned construction activities in Middle Harbour and Flat Rock Gully and works under and immediately adjacent to the Clive Park Heritage Area can be addressed by the submitted management plans and control processes.

The EIS has not addressed the impacts to the existing maritime users of Middle Harbour, nor has it addressed the use by the Public and of the Clive Park Heritage Area and Clive Park Beach, nor has it addressed the re-suspension and re-animation of potential toxins and contamination, and the impacts that potential odour release during dredging will have to the Public, and to Maritime Users of Clive Park Beach and surrounding foreshore.

The resolution of environmental impacts is prerequisite required by the Secretaries in the project SEARs requirements (refer to Figure 13 and Figure 14) and in my view these requirements have not been answered by the Proponent.

Table 23-1 Secretary's environmental assessment requirements – hazards and risks

Secretary's requirement	Where addressed in EIS
Transport and traffic	
1. The Proponent must assess construction transport and traffic (vehicle, marine, pedestrian and cyclists) impacts, including, but not necessarily limited to: a. a considered approach to route identification and scheduling of marine and land transport movements, particularly outside standard construction hours j. impacts to water-based traffic on Middle Harbour.	Within **Chapter 6** (Construction work), **Section 6.7** and **Section 6.8** show the land and maritime construction traffic/vessel movements for each temporary construction support site, as well as the operating hours of each site. Construction traffic routes are discussed in **Chapter 8** (Construction traffic and transport). **Section 8.4** discusses the proposed marine and land transport movements. **Section 23.2.4** outlines interactions between maritime traffic and tunnel infrastructure during construction.

Figure 13 EIS chapter 23, Table 21-1

Further, the impacts of the proposed dredging and toxin/contamination re-animation are significant when combined with the cumulative Middle Harbour waterway restrictions, and when overlaid by existing and well known (and ongoing) Sydney Water sewage and stormwater discharge events[4], which further reduce public use of Middle Harbour waterway.

These ongoing major events creates the potential for significantly higher maritime

cumulative effects and cumulative public health effects at Middle Harbour and Clive Park headland area, and these have not been assessed in accordance with the project SEARs (refer to Figure 13).

[4] https://www.willoughby.nsw.gov.au/Council/News-and-media/Sewage-leak-at-Flat-Rock-Reserve-bush-tracks-closed; and https://www.thinklocal.com.au/article/local/community/sewage-spill-sparks-environmental-health-concerns and https://www.epa.nsw.gov.au/news/media-releases/2018/epamedia180326-sydney-water-enters-enforceable- undertaking-for-tunks-park-sewage-discharge

Assessment of Key Issues	
2. For each key issue the Proponent must: c. identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence of the impact (comprehensive risk assessment), and the cumulative impacts of: a) concurrent project construction activities; and b) proposed and approved projects (where information is available at the time of writing)	Potential cumulative impacts during construction and operation for the key issues discussed in **Chapters 8** to **26** are described in **Section 27.3** and **Section 27.4**.
Consultation	
4. The Proponent must assess the potential for complaint fatigue to occur during construction of the project and describe how mitigation measures, complaint handling procedures and community consultation mechanisms will mitigate complaint fatigue. The assessment must consider the cumulative impacts from the project and other major projects in the local area.	The potential for complaint fatigue to occur and proposed mitigation measures and complaint handling procedures are described in **Chapter 7** (Stakeholder and community engagement). Potential impacts of construction and complaint fatigue are described in **Section 27.3.7**.

Figure 14 EIS chapter 27, Table 27-1

I strongly dispute the Middle Harbour EIS assertion that the project *"would be unlikely to produce cumulative impacts"* (refer to Figure 14) especially with the number of existing major events, currently predicted and prolongated Beaches Link project activities located in the upper Middle Harbour area.

27.3.4 Middle Harbour

Works at the Middle Harbour cofferdams and the Spit West Reserve construction support site (BL9) would be unlikely to produce cumulative impacts with the projects identified in Table 27-3 and strategic plans in Table 27-4.

Figure 15 EIS chapter 27, section 27.3.4

When the Beaches Link works are measured against an existing baseline of generally nil waterway construction activities in the upper Middle Harbour area, the Proponents cumulative project activities and real construction impacts are significant and will lead to four (4) years of cumulative impacts and disruptions to the Public, Residents, Businesses, Community Organisations - Northbridge Sailing Cub and Sea Scouts in Middle Harbour.

PROPOSED CONDITIONS AND MITIGATIONS

In my view, the current EIS analysis, work methods and proposed management plan approach (EIS, chapters 6, 7, 10 and 13) are deficient and do not adequately address the significant impacts to the Middle Harbour maritime waterway users and/or to adjacent Clive Park Heritage Area, and to the protection and/or restoration of the Aboriginal heritage caves/shelters and artworks.

There has been no formal consultation and/or discussion between the Proponent and the directly affected parties maritime users on the restrictions to be put in place directly overlaying Middle Harbour waterway activities, and as such, I strongly request that the Department condition the Proponents proposal to protect public waterway use; to protect affected titled lands; and to protect (and where possible enhance) the existing listed heritage elements within Clive Park and at the Clive Bay Foreshore (i.e. the remaining rock pool elements).

We request the Department's decision and instrument of approval contain conditions and mitigations that reflect the following objectives and requirements:

1. Middle Harbour Consultation and Maritime Working Group (MWG)

The potential maritime navigational waterway changes are significant and cannot be easily mitigated at this stage of project and design development.

The waterway activities, sailing and boating risks and hazards have not been adequately addressed in the EIS documentation to date, and the risks and hazards require additional and specialist review and mitigation prior to commencing any pre-construction or primary construction works in the Middle Harbour area.

1.1 Maritime Communications Strategy and Maritime Working Group

(MWG-01) The Proponent must prepare a 'Maritime Communication Strategy' to provide mechanisms to facilitate communication about restrictions to waterways, changes in berthing and moorings, pre-construction and construction activities.

The Strategy must address who (the Proponent, Independent Appointments and/or Construction contractor) in the maritime community, relevant councils and maritime agencies, and how they will be engaged and the timing of engagements.

The strategy must provide:

- *A four (4) week look ahead approach for external party communications planning;*
- *a six (6) and twelve (12) month calendar including a forward plan of:*
- *upcoming work, planned engagements and stakeholder activities;*
- *maritime stakeholder, community and Middle Harbour Maritime and CPHA meetings; and*
- *updating processes for notifications and newsletters;*
- *an update on any current or emerging maritime and CPHA issues;*
- *an update on complaints received and actions taken to resolve them; and*

- *I acknowledge that the Proponent has carried out wider area consultation in c2017-18, c2020 and in 2021 with the release of EIS, however the significant maritime restrictions and potential impacts to landowners by way of toxin and contamination discharge during dredging activities, were never disclosed in these initial information releases.*

- *an update on any neighbouring construction projects (including Sydney Water sewerage/stormwater contamination treatment works which affect Middle Harbour) where cumulative impacts need to be actively communicated and locally managed.*

(MWG-02) The Proponent must establish an independent 'Maritime Working Group' to provide input into the Maritime Communication Strategy, into the maritime planning and design elements of the project, pre- construction detailed planning and maritime construction risks, hazards and mitigations for the project.

The Proponent must establish the working group before relevant works commence including any intrusive excavations. The Secretary must be informed of the members and the working group must comprise maritime planning, geotechnical and engineering experts independent of the design and construction team.

The working group should contain a representative selection of regular waterway users, of immediately adjacent potentially affected landowners and local aboriginal groups (i.e. Clive Park Heritage Area RAP representatives). The working group must meet bi-monthly during the pre-construction phase and then quarterly during the primary construction phase, unless agreed otherwise by the parties.

The Maritime Working Group must:

- *not be used as or for 'presentation sessions';*
- *be attended by suitably qualified and experienced key individuals, who have the appropriate levels of delegated authority from the stakeholders and adjacent landowners to bind the objectives, inputs and outcomes;*
- *assess the Proponents intended approach to meeting the requirements of the EIS and other Planning Approvals (including any Environmental Protection License - EPL);*
- *review any specific maritime technical requirements (e.g. navigational changes and restricted work areas) and agree these between the Proponent and future contractor(s); and*
- *identify, discuss, resolve, agree resolution of problems or mitigation measures associated with the maritime technical designs and maritime construction methods.*

Note: Where an impasse exists between members of the working group, the Planning Secretary will provide final approval/endorsement.

(MWG-03) The Proponent must gain endorsement of the Maritime Communication Strategy and Maritime Working Group composition from the Planning Secretary, prior to the commencement of pre-construction activities, unless otherwise agreed by the Planning Secretary.

1.2 Pre-construction phase

(MWG-04) The Proponent must develop a 'Maritime - Construction Environmental Management Plan' (M.CEMP) in consultation with Maritime Working Group and with feedback from other maritime stakeholders (e.g. Maritime Rescue and NSW Water Police) and maritime user of the Middle Harbour waterway and stakeholder of the Clive Park Heritage Area (CPHA). The Plan must provide technical staging, programming and detail all preliminary investigations, any pre-construction and construction phase maritime impingements to navigational waters (refer MWG-01 to MWG-03) and/or to the CPHA.

(MWG-04) The M.CEMP must be submitted to the Sydney Harbour Master for approval/endorsement prior to any changes in navigational waters. Where maritime notices and

publications are required, the Proponent must allow a minimum of two (2) months' notice prior to any changes to those navigational patterns, unless in an emergency and at the approval of the Sydney Harbour Master.

Further, any changes to navigational waters must be notified in accordance with the Sydney Harbour Masters requirements and in accordance with the Maritime Communication Strategy (MWG-01).

1.3 Construction phase

(MWG-05) The proposed construction methods must reduce navigational risks and hazards while optimising the use of the Middle Harbour for maritime users. The Proponent must implement the requirements of the M.CEMP (MWG-04) and provide regular updates on the maritime activities to the Maritime Working Group and to the Secretary Planning (MWG-02) .

(MWG-06) The proponent must restrict construction activities MHC_07 and MHC_10 to being carried out between May and be complete before the end of August of each calendar year, when Middle Harbour waterway use is generally at its lowest.

Note: these intrusive and disruptive works are currently scheduled for the Middle Harbour 'peak summer' sailing and waterway activity periods in 2025 and 2026.

2. Clive Park Heritage Area (CPHA) Investigations, Excavation, Noise, Vibration and Blast affects

The current EIS construction methodologies, noise and vibration assessments (EIS, chapters 6, 7 and 10) propose 'generic' and 'high level' construction methods and plans to mitigate risks from construction vibrations, blast over-pressures, ground water draw-downs and ground vibration / sedimentation (post construction and during normal operation), these are deficient and require additional mitigation and control.

Construction and operational noise, vibration and sedimentation posed significant risks and hazards to the Clive Park Heritage Area (CPHA), and have the potential to damage irreplaceable Aboriginal heritage elements/items and potentially destabilise rock caves/shelter and artwork walls, that a used by the Public.

We recognise that controlled blasting can have significant public benefits by reducing the need and duration of other forms of intensive excavation techniques, such as rock breaking and rock sawing, however, with the proposed tunnels being located directly beneath the Aboriginal caves/shelters and artworks, and with the southern portal maritime works (RMS Site BL7) being located less than 50m from the Clive Park Heritage Area, further detailed works plans, localised work restrictions and heritage protection is required.

2.1 Clive Park Heritage Area (CPHA)

(CPHA-01) At the approval of the Maritime Working Group, and for all works (including investigations, pre- construction works, general excavation, tunnelling, piling, jack hammering,

compaction and blasting activities) located adjacent to the Clive Park Heritage Area (CPHA), commencing at a line generally located between 453 Sailors Bay Road and 6 Tycannah Road, including all Beaches Link tunnel works up to and including the Southern Coffer Dam location (BL7), that the Proponents construction planning, work methods and work activities be developed to ensure that the CPHA is protected and enhanced.

2.2 Pre-construction analysis

(CPHA-02) A detailed geotechnical, structural and vibration analysis is carried out prior to any excavation or land lowering or ground water lowering activity. The Proponent must undertake a geotechnical, structural and vibration analysis of the CPHA aboriginal and heritage cave/shelter structures and artwork rock faces, to determine the effects of the tunnel works and activities on those elements. The Proponent must provide regular updates on the maritime and CPHA activities to the Maritime Working Group and to the Secretary Planning.

(CPHA-03) The Proponent must review alternative methods to rock hammering and blasting for excavation, as part of the detailed construction planning with a view to adopting methods that minimise impacts on sensitive receivers and heritage assets/artefacts. The geotechnical, structural and vibration analysis must:

- *(CPHA-03a) be sufficient to identify and provide all geotechnical (including geological variations), structure (including short and long term rock fracture risk) and vibration information required to design, construct and maintain public and heritage asset safety during and post construction;*
- *(CPHA-03b) determine the most appropriate construction method, excavation sequence, temporary supports, primary or permanent structural supports, and construction impacts to ground levels and rock faces, or for ground water and potential ground water induced settlement at the CPHA;*
- *(CPHA-03c) encompass the structural adequacy, shorth and long term settlement or deformation and durability of Aboriginal heritage cave/shelter structures and adjacent artwork rock faces;*
- *(CPHA-03d) predict the in-situ ground movements, structural movements and groundwater movements; and*
- *(CPHA-03e) predict effects over time.*

(CPHA-04) The Proponent must survey, monitor and control all pre-construction investigations, and primary construction tunnelling, excavation, water table draw down, and work activities in accordance with the geotechnical and vibration analysis findings.

(CPHA-05) The Proponent must at minimum of six (6) months prior to any site activities commencing and then at six (6) monthly intervals until 24 months post completion, provide updates on the monitoring findings, trigger levels and/or exceedances (if any) to the Maritime Working Group and to the Secretary Planning.

2.3 Construction phase

- *(CPHA-06) The construction methods must reduce air and ground born vibration(s) to mitigate the risk to and potential damage to, the Clive Park Heritage Area (including aboriginal shelter/caves, aboriginal artwork and community pool artifacts);*
- *(CPHA-07) the construction methods reduce any blasting activities to mitigate the risk to and potential damage to, the Clive Park Heritage Area;*

- *(CPHA-08) the construction methods must reduce vibration and adopt the least impact alternative resulting from construction and received at any structure and/or heritage assets/artifacts, shall be limited to:*
  - *(a) For structural damage vibration, the highest asset protection elements of – the acceptable vibration values set out in the German Standard DIN 4150: Part 3- 1999 'Structural Vibration in Buildings: Effects on Structures' and/or British Standard BS 7385-2:1993 'Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration'; and*
  - *(b) For human exposure to vibration - the acceptable vibration values set out in the 'Assessing Vibration: A Technical Guideline' (DEC 2006)*
- *(CPHA-09) Wherever practical, the Proponent shall undertake piling activities using non-percussive piles; and*
- *(CPHA-10) Wherever practical, the Proponent shall undertake all relevant construction activities with the objective of not exceeding the following ground-borne noise criteria at community facilities (including adjacent boat sheds) and residential receivers:*
- *an internal LAeq(15min) of 40 dB(A) between 6:00 pm and 10:00 pm; and*
- *an internal LAeq(15min) of 35 dB(A) between 10:00 pm and 7:00 am.*
- *(CPHA-11) The Proponent must develop and implement all reasonable and feasible noise and vibration mitigation measures with the aim of minimising ground-borne noise and vibration impacts to the Clive Park Heritage Area and at adjacent community facilities (including the 1s Northbridge Boat Shed and Northbridge Sailing Club), and*
- *(CPHA-12) The Proponent must take all reasonable steps so as not to harm, modify or otherwise impact any Aboriginal areas and artefacts associated, except as authorised by this approval.*

The intent of the above proposed conditions (CPHA-01 to CPHA-12) are for the Maritime Working Group to provide local maritime community oversight, technical inputs and review of all activities that have the potential to effect the Middle Harbour waterway and the Clive Park Heritage Area, while balancing the risk of localised impacts (or in the extreme, damage to heritage items/fabric) with that of the wider community.

Note: Any relaxation of preliminary investigations, and/or changes to construction methodologies and/or excavation/blasting activities should be contingent on identifying investigation and construction delivery methods that reduce the risk of cosmetic and/or structural damage to the Aboriginal heritage caves/shelters and artworks.

3. Potential Contamination, Dredging and Sediments

The proposed tunnel construction, coffer dam piling, dredging and trenching works associated with the construction of the harbour crossing, submerged tubes and coffer dams, have the potential to re-activate and re-animate existing sea floor toxins and heavy metal contamination, and deposit toxin and heavy contamination as siltation within adjacent titled lands (Clive Park, Northbridge Sea Scouts and Northbridge Sailing Club) and upon regenerating fauna and flora in the area.

The current construction methodologies (EIS, chapters 13, 16, and 17) indicate that during and post construction, that new potentially contaminated sedimentation will overlay the Clive Park Beach foreshore and bay, Northbridge Sailing Cub lands and Northbridge Sea Scout lands wider sea floor areas.

The current EIS high level modelling indicates some 2-10mm of toxic sedimentation (containing re-animated toxins, heavy metals and odour release) will be deposited on areas used by the public and in particular families with young children.

3.1 Pre-construction analysis
(CON-01) A detailed contamination analysis (i.e. Phase 2 site audit) and is carried out prior to any sea floor excavations. The contamination audit must be prepared by a suitably qualified and experienced person in accordance with guidelines made or approved under the Contaminated Land Management Act 1997 (NSW).

The Proponent must undertake a detailed analysis of sea floor for 500m either side of the immersed tube and coffer dam works, and for 50m surrounding at all temporary construction sites that incorporate sea floor disturbance (e.g. anchoring and piling).

The Proponent must undertake a detailed maritime analysis of sea floor for all expected sedimentation deposit areas (based on 98th percentile plume/drift models), and base-line any existing lands/sea floor areas, to determine any existing pre-construction and post construction effects of the Proponents activities on the lands/sea floor, foreshore, beach and CPHA.

The Proponent must submit the maritime analysis and plan as part of the M.CEMP to the Maritime Working Group and to the Secretary Planning.

The maritime contamination analysis and plan must:

- *(CON-01a) be sufficiently detailed to identify and provide existing contamination information required to enabled detailed design, construction and maintenance of human and aquatic health and safety pre, during and post construction;*
- *CON-01b) include detailed flow or changes in flow, and contaminant flow models to allow prediction of human and aquatic life exposure levels (i.e. Target, Trigger and Alarm event levels), during various months of the year;*
- *(CON-01c) contain and determine exposure limits for human and in particular children (including under 10 years of age group) and set maximum thresholds for toxins and heavy metal contaminants of the area (Trigger and Alarm event levels). Of particular concern and based on previous scientific studies are the following heavy metals, which present in the Middle Harbour; Copper (Cu), Lead (Pb), Zinc (Zn), Chromium (Cr), and potentially 'Per- and polyfluoroalkyl substances' (PFAS); and*
    - *(CON-01d) determine the most appropriate construction methods and contaminate mitigations (e.g. barge based pneumatic/suction dredging vs cam-bucketing of the toxin*

ladened silt layer must be explored during design development), appropriate excavation and construction sequences/schedules, for appropriate tidal ranges, temporary treatments and target/trigger/alert/alarm monitoring requirements based on the detailed analysis.

3.2 Pre-construction and Construction phase

(CON-02) The Proponent must survey, investigate, monitor and control all pre-construction phase activities and all primary construction phase activities including tunnelling beneath CPHA, coffer dam excavation and all other work activities in accordance with the maritime contamination analysis, methodologies and findings, as noted in CON-01.

(CON-03) The Proponent must at a minimum of six (6) months prior to any pre-construction works, including any intrusive site investigation activities and then following at bi-monthly intervals (until 24 months post completion), provide updates on the contaminant monitoring program findings, trigger levels and exceedances (if any) to the Maritime Working Group and to the Secretary.

(CON-04) The Proponent must provide within four (4) hours of an 'Alarm Level Exceedance' event and withing twelve (12) hours of a 'Trigger Level Exceedance' event, provide a draft event report to the Maritime Working Group and to the Secretary Planning, and within 24 hours provide a further report outlining the discharge event and the Proponents planned mitigation works and further detailed reporting, until closure is received by the Secretary Planning, and/or Sydney Harbour Master and/or NSW Environmental Protection Authority (EPA).

All 'Alarm Level Exceedance' events must be reported immediately (and no greater than 1 hour) to the Sydney Harbour Master and the Maritime Working Group liaison personal, who will inform the local waterway users of the risks to waterway use and implement local response and action plans as necessary.

4. Contributions and Compensation

The State Significant nature of this project and resultant disruptive impact to the community during the construction and commissioning phase warrants serious financial contribution to Community Organisations, Businesses and Local Councils to offset the disruption, destruction and loss of productivity due to the cumulative impacts generated by this proposal.

Community, Business & Local Council Contributions (COM)

(COM-01) The Proponent enters into Deeds of Agreement with affected parties noted in the following Schedule 1 and pays the contribution amount prior to project commencement.

Note: The contribution amount paid prior to project commencement will facilitate the ability of affected parties listed on Schedule 1 to undertake their own works whilst the disruption and construction occurs with this project and thereby offset the restricted access to the waterway use.

Schedule 1

Item and component	*Contribution*
Clive Park – Willoughby Council *Park and Beach – reinstate pool seawall & park protection*	*$TBD*
Northbridge Sailing Club *Deck and Building – urgent repairs and refurbishment*	*$TBD*
1st Northbridge Sea Scouts *Boat Shed– urgent repairs and refurbishment*	*$TBD*
Northbridge Baths – Willoughby Council *Programmed maintenance, repairs and refurbishment*	*$TBD*
Flatrock Gully – Willoughby Council *Reinstatement of Bushland and Ancillary Works*	*$TBD*
Marina Businesses – Middle Harbour	*$TBD*

Note:
In my view, the Department and the Proponent have an obligation to talk to other affected groups within North Sydney, Mosman and Northern Beaches LGAs to ascertain and finalise an updated Schedule 1 for *(COM-01)* – as mentioned earlier in this submission.

In concluding, in my view, the EIS findings are technically flawed and have focused on the impacts to future construction activities, i.e. to the Proponents works and future construction workers.

The currently submitted EIS and supporting technical documents provides little assurance to me, the residents, businesses and community organisations that the effects of the planned construction activities in Middle Harbour and Flat Rock Gully and works under and immediately adjacent to the Clive Park Heritage Area can be addressed by the submitted management plans and control processes.

Yours Sincerely

Denis Fernandez
28 February 2021